

IN THE CLAIMS

Kindly enter these claims.

1. (currently amended) ~~[[A]]~~ An isolated DNA encoding a polypeptide comprising an amino acid sequence represented by SEQ ID NO:3 ~~avermectin aglycon synthase.~~

2. (currently amended) ~~[[A]]~~ An isolated DNA comprising a nucleotide sequence selected from the group consisting of according to claim 1, wherein the DNA comprises a nucleotide sequence represented by nucleotide Nos. 1-11916 and 11971-30688 of SEQ ID NO:1 and nucleotide Nos. 1-14643 and 14824-31419 of SEQ ID NO:2;
~~or a DNA which hybridizes with said DNA under stringent conditions and which encodes a polypeptide having avermectin aglycon synthase activity.~~

Claims 3-15 (canceled)

16. (currently amended) ~~[[The]]~~ A DNA according to claim 3 or 4 wherein the DNA encoding a polypeptide comprising an amino acid sequence wherein His residue at position 3037 is substituted by an amino acid other than His, and Ala residue at position 3038 is substituted by an amino acid other than Ala in the amino acid sequence represented by SEQ ID NO:3 ~~avermectin aglycon synthase domains is a mutated DNA encoding a polypeptide having enhanced or diminished activity of the domain.~~

Claims 17-30 (canceled)

31. (currently amended) ~~[[A]]~~ An isolated polypeptide encoded by the DNA according to claim 44.

32. (currently amended) ~~[[A]]~~ An isolated polypeptide comprising an amino acid sequence represented by SEQ ID NO:3 according to any one of SEQ ID NOS:3 to 6; or

~~a polypeptide comprising an amino acid sequence wherein one or more amino acids are deleted, replaced or added in the amino acid sequence according to any one of SEQ ID NOS: 3 to 6, and having avermectin aglycon synthase activity.~~

Claim 33 (canceled)

34. (currently amended) A recombinant vector comprising the DNA according to claim 1 or 16 ~~any one of claims 1 to 30.~~

35. (currently amended) A transformant obtainable by introducing the DNA according to claim 1 or 16 ~~any one of claims 1 to 30 or the recombinant vector according to claim 34~~ into a host cell.

36. (original) The transformant according to claim 35 wherein the host cell is an avermectin-producing bacterial strain.

37. (currently amended) The transformant according to claim 35 ~~[[or 36]]~~ wherein the host cell is *Streptomyces avermitilis* K2038 (FERM BP-2775).

38. (currently amended) A process for producing the polypeptide according to claim 31 or 32 ~~avermectin aglycon synthase or avermectin aglycon synthase domain polypeptide~~ comprising:

culturing a ~~[[the]]~~ transformant expressing the polypeptide ~~according to any one of claims 35 to 37~~ in a medium to produce and accumulate the ~~enzyme or the domain~~ polypeptide in the culture, and

recovering the ~~enzyme or the domain~~ polypeptide from the culture.

39. (currently amended) A process for producing avermectin aglycon or altered avermectin aglycon comprising:

culturing a transformant according to claim 35 ~~any one of claims 35 to 37~~ in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture, and

recovering the avermectin aglycon or the altered avermectin aglycon from the culture.

40. (currently amended) A process for producing avermectin or altered avermectin comprising:

culturing a transformant according to claim 35 ~~any one of claims 35 to 37~~ in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture, glycosylating the avermectin aglycon or the altered avermectin glycon, and

recovering the resulting avermectin or altered avermectin.

41. (original) The process according to claim 40 wherein altered avermectin is avermectin which has been altered from avermectin B1a to avermectin B2a.

42. (original) An altered avermectin obtainable by the process according to claim 40.

Claim 43 (canceled)

Kindly enter the following new claims.

44. (new) An isolated DNA which hybridizes with a nucleotide sequence represented by nucleotide Nos. 1-11916 of SEQ ID NO:1 under stringent conditions; wherein said stringent conditions comprise hybridization at 65°C in the presence of 0.7 to 1.0 mol/l sodium chloride using a filter on which DNAs derived from colonies or plaques have been immobilized, followed by washing the filter at 65°C using 0.1 to 2-fold SSC solution (1-fold SSC solution is 150 mmol/l sodium chloride and 15 mmol/l sodium

citrate); and the DNA encodes a polypeptide having AT' activity, ACP' activity, KS1 activity, AT1 activity, KR1 activity, ACP1 activity, KS2 activity, AT2 activity, DH2 activity, KR2 activity, and ACP2 activity.

45. (new) The DNA according to claim 16 wherein the amino acid other than His is Tyr, and the amino acid other than Ala is Glu.

46. (new) The DNA according to claim 45 wherein the DNA comprises a nucleotide sequence 5'-CATGCC-3' of nucleotide Nos. 9109-9114 of SEQ ID NO:1 is replaced by a nucleotide sequence 5'-TACGAG-3'.

47. (new) A polypeptide comprising an amino acid sequence wherein His residue at position 3037 is substituted by an amino acid other than His and Ala residue at position 3038 is substituted by an amino acid other than Ala in the amino acid sequence represented by SEQ ID NO:3.

48. (new) The polypeptide according to claim 47 wherein the amino acid other than His is Tyr and the amino acid other than Ala is Glu.

49. (new) A process for producing avermectin aglycon or altered avermectin aglycon comprising:

culturing a transformant according to claim 36 in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture, and recovering the avermectin aglycon or the altered avermectin aglycon from the culture.

50. (new) A process for producing avermectin or altered avermectin comprising:

culturing a transformant according to claim 36 in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture,

glycosylating the avermectin aglycon or the altered avermectin glycon, and
recovering the resulting avermectin or altered avermectin.

51. (new) The process according to claim 50 wherein altered avermectin is avermectin which has been altered from avermectin B1a to avermectin B2a.

52. (new) An altered avermectin obtainable by the process according to claim 50.

53. (new) A process for producing avermectin aglycon or altered avermectin aglycon comprising:
culturing a transformant according to claim 37 in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture, and recovering the avermectin aglycon or the altered avermectin aglycon from the culture.

54. (new) A process for producing avermectin or altered avermectin comprising:
culturing a transformant according to claim 37 in a medium to produce and accumulate the avermectin aglycon or the altered avermectin aglycon in the culture, glycosylating the avermectin aglycon or the altered avermectin glycon, and recovering the resulting avermectin or altered avermectin.

55. (new) The process according to claim 54 wherein altered avermectin is avermectin which has been altered from avermectin B1a to avermectin B2a.

56. (new) An altered avermectin obtainable by the process according to claim 54.